REMARKS/ARGUMENTS

The amendments set out above and remarks are responsive to the points raised by the Office Action dated April 24, 2006. In view of the amendments set out above and the following remarks, reconsideration is respectfully requested.

Claims 1-28 are currently pending. Claim 13 has been amended to describe the invention more clearly. No new matter has been added, and the basis for the amended claim language may be found within the original specification, claims, and drawings. The amendments to claim 13 are supported at, for example, page 4, lines 18-20.

Claims 1-13, 20, 22, and 24-28 were rejected under 35 U.S.C. § 103 as unpatentable over U.S. Patent No. 5,352,507 to Bresson et al. (hereinafter, "Bresson") in view of U.S. Patent No. 6,703,095 to Busshoff et al. (hereinafter, "Busshoff") and U.S. Patent No. 5,347,927 to Berna et al. (hereinafter, "Berna").

Claims 14-19 were rejected under § 103 as unpatentable over Bresson in view of Busshoff and Berna as applied to claims 1 and 2, and further in view of U.S. Patent No. 5,754,931 to Castelli et al. (hereinafter, "Castelli").

Claim 21 was rejected under § 103 as unpatentable over Bresson in view of Busshoff and Berna as applied to claims 1 and 2 above, and further in view of U.S. Patent No. 6,699,419 to Kia et al. (hereinafter, "Kia").

Claim 23 was rejected under § 103 as unpatentable over Bresson in view of Busshoff and Berna as applied to claims 1 and 2 above, and further in view of U.S. Patent Publication No. 2002/0182328 to Asai et al. (hereinafter, "Asai").

Each of these rejections is separately and respectfully traversed.

A *prima facie* case of obviousness has at least two requirements. First, the cited combination of references must disclose all of the claim elements. Second, there must be some suggestion or motivation for one of ordinary skill in the art to combine the references to arrive at the presently claimed invention (MPEP § 2143). Because the Office Action fails to meet at least both of these requirements, the § 103 rejection is improper and should be withdrawn.

According to the Office Action, Bresson teaches a seamless multilayered printing sleeve, as claimed, including a printing layer 6, a compressible layer 4 and a circumferential stiffening layer 5 disposed between the printing layer 6 and the compressible layer 4. The Office Action states that the stiffening layer 5 functions as a reinforcing layer placed on the

compressible layer, the reinforced layer 5 could have a thickness of 1 mm, and that the oriented fibers reinforce the elastomer layer 5 such that the modulus of elasticity in the circumferential direction is 200 MPa or more.

The Office Action correctly acknowledges that Bresson does not teach the thickness of the reinforced layer 5 to be 0.5 mm or less and does not state to what extent the modulus of elasticity in the circumferential direction goes beyond the 200 MPa as stated. The Office Action cites Busshoff as teaching a reinforced fibrous polymer layer 12 having a thickness of about between 0.1 mm and 0.8 mm. The Office Action also cites Berna as teaching a reinforced layer 14 underneath the printing layer 12 that has a tensile modulus in the circumferential direction of 50-2000 MPa and a modulus of compression in the radial direction of 5 to 50 MPa. According to the Office Action, it would have been obvious to one of ordinary skill in the art to provide the printing sleeve of Bresson with a thin-walled reinforced polymer layer as taught by Busshoff in order to control the overall thickness of the printing sleeve and at the same time achieve the exceptionally high tensile strength in the circumferential direction. The Office Action also stated that it would have been obvious to one of ordinary skill in the art to provide the fiber reinforced layer of Bresson as modified by Busshoff with a modulus of elasticity in the circumferential direction at 400 MPa or more and in the radial direction at 50 MPa for the advantage that no further carrier or tube is required for mounting the endless printing sleeve directly around the printing cylinder so as to cut manufacturing cost.

Claim 1 recites, *inter alia,* a printing sleeve comprising, successively and radially from the interior to the exterior, a radially internal compressible layer, a circumferential stiffening layer, and a printing layer. The circumferential stiffening layer has a thickness not exceeding 0.5 mm and a Young's modulus in the circumferential direction of at least 400 MPa. Claim 28 recites, *inter alia,* a printing sleeve comprising a printing layer, a compressible layer, and a circumferential reinforcing composite material, wherein the reinforcing composite material is located between the compressible layer and the printing layer. The circumferential reinforcing composite material has a total thickness between 0.2 to 0.5 mm and a Young's modulus in the circumferential direction between 400-100,000 MPa.

The stiffening layer of claim 1 and the claimed reinforcing composite material of claim 28 have the Young's modulus in the circumferential direction and the thickness

necessary to provide the function of a metal carrier and make the presence of a metal carrier unnecessary. The claimed Young's modulus in the circumferential direction provides the stiffness necessary to eliminate an internal metal carrier, allows stressing of the compressible layer after slipping the sleeve on the printing cylinder and ensures both the maintenance of the sleeve during printing and the stability of the register in the printing nip. At the same time, the claimed thickness provides the radial flexibility necessary to permit a local deformation of this layer in the vicinity of the nip, making it possible to regulate the width of the printing nip and the heterogeneities coming from overloads or lack of pressure at points in the transverse direction or in the rotation direction. The stiffening layer can be subjected to 100 to 500 microns of deflection without breakage (specification, page 4, line 25 to page 5, line 2).

The obviousness rejection of the claims over Bresson in view of Busshoff and Berna cannot be maintained for at least two reasons. First, the structure of the printing blanket of Bresson is so different from the printing sleeve of Busshoff and the printing element of Berna that the teachings of Busshoff and Berna cannot be combined with those of Bresson. Secondly, the combination of the teachings of Bresson with Berna and Busshoff are impermissibly based on hindsight.

Busshoff teaches a printing sleeve 10 that has a lower cost than nickel or other metal-based sleeves. Busshoff teaches, in every example, a base sleeve 12 carrying a compressible layer 13, which in turn carries an imageable layer 14. Busshoff also teaches that the cylindrical wall of print sleeve 10 is airtight and is capable of some slight expansion upon the application of fluid pressure. When mounted to a plate cylinder, as shown in Figure 4, air expands the sleeve 10 slightly enough to permit it to slide along the length of the cylinder 30. Once the air pressure is removed, sleeve 10 contracts to form a tight friction fit with plate cylinder 30 (col. 9, lines 1-15). As shown in Figure 4, the radial innermost layer is base layer 12.

In contrast, the printing blanket of Bresson has a totally different structure than that taught in Busshoff. Bresson teaches, in each of Figures 2-8, that the elastomer layer 5 is between compressible layer 4 and surface layer 6. In Bresson, elastomer layer 5 does not support both the compressible layer 4 and the surface layer 6, in contrast to Brusshoff, in which the base sleeve 12 supports both the compressible layer 13 and the imageable layer 14. Since the elastomer layer 5 of Bresson is in positioned between compressible layer 4 and

surface layer 6, one of ordinary skill in the art would not be motivated to consider the teachings of the thickness of a base layer 12 that supports, rather than lies between, both the compressible layer 13 and the imageable layer 14, particularly when the base layer 12 provides the airtight attachment to the cylinder described above.

Moreover, the combination of the thickness of the layer 12 of Brusshoff with the elastomer layer 5 of Bresson is improperly based on hindsight. There is absolutely no teaching in Bresson or Busshoff that would lead one of ordinary skill in the art to choose the thickness of a radially internal layer 12 of Busshoff and apply it to an intermediate layer 5 of Bresson. To provide the printing sleeve of Bresson with a thin-walled reinforced polymer layer as taught by Busshoff, as asserted in the Office Action, is based on hindsight reasoning with knowledge of the claimed invention.

Berna teaches a spirally integrated reinforced compressible tubular structure used *instead of* separate compressible layers and reinforcing layers, which are separately formed into concentric tubes around the rotational axis (col. 1, line 63 to col. 2, line 1). Applying the teachings of Berna to the sleeve of Bresson would result in a structure that only includes the external printing layer of Bresson being supported by the spirally integrated structure 14 of Berna. The teachings of Berna therefore cannot be applied to the sleeve of Bresson because the combination would result only in the structure of Berna, i.e., a spirally integrated reinforced compressible layer 14 supporting surface layer 12 (Figure 2 of Berna). Furthermore, the teachings of the Young's modulus with respect to the spirally wound layer 18 and 20 of Berna cannot lead one of ordinary skill in the art to the Young's modulus of the coaxial, single layers used in the claimed invention. Thus, the proposed combination of Bresson in view of Berna is impermissibly based on hindsight.

Moreover, the claimed printing sleeve requires that the compressible layer be the radially internal layer. In Berna, the void containing elastomer 20 is located between the tubular inntermost sheet portion or winding 14A and outermost sheet portion or winding 14B (col. 4, lines 50-58). Accordingly, the elastomer 20 is not the radially innermost internal layer, as is the compressible layer of the present claims. The elastomer layer 20 in Berna is, in contrast, an intermediate layer that is part of the spirally wounded structure 14. . Accordingly, the structures of the printing blanket of Bresson and the printing element of Berna are so different from each other that one of ordinary skill in the art would not be motivated to apply the Young's modulus value in Berna to the printing blanket of Bresson.

There is absolutely no teaching or suggestion in Berna or Bresson to apply the Young's modulus of Berna of the spirally-integrated layer 14, including elastomer layer 20 and reinforcing sheet 18, to the elastomer layer 5 of Bresson. Accordingly, the proposed combination of Berna with Bresson is improperly based on hindsight.

For the reasons set forth above, the obviousness rejection of independent claims 1 and 28 cannot be maintained. Because the rejections of the dependent claims as obvious under 35 U.S.C. § 103 rely on the propriety of the rejection of independent claim 1, the rejections for obviousness of those claims fall with the failure of the rejection of claim 1. Castelli, Kia, and Asai do not cure the deficiencies of Bresson, Busshoff, and Berna, and therefore the rejections of the dependent claims fall with the rejection of independent claim 1.

Dependent claims 11, 25, and 26 are also allowable, not only because they depend from allowable independent claim 1, but also because they define limitations not taught by any of the cited references. Claim 11 recites an elongation at breakage in a circumferential direction of the circumferential stiffening layer greater than 1.2%. Claim 25 recites a removal facilitating layer having a modulus of 5 to 800 MPa, a thickness of 0.02 to 0.1 mm, and a surface with an Ra factor less than 0.5 microns. Claim 26 recites that the facilitating layer has a friction coefficient on steel or on composite resin between 0.2 and 0.5. According to the Office Action, these claimed parameters are not disclosed in Bresson but would have been obvious to one of ordinary skill in the art through routine experimentation. However, nothing in Bresson or any of the cited references leads one of ordinary skill in the art to choose these specifically claimed parameters. Without any teaching or suggestion to specifically choose these parameters, the obviousness rejection of claims 11, 25, and 26 cannot stand.

Amended dependent claim 13 is also allowable, not only because it depends from allowable independent claim 1, but also because it defines limitations not taught by any of the cited references. Amended dependent claim 13 recites that the circumferential stiffening layer has a Young's modulus greater than 100 MPa in a direction parallel to an axis of a cylinder of a printing machine. Berna teaches that the spirally-integrated layer 14 has a tensile modulus in the circumferential direction of 50-2000 MPa, and a modulus of compression in the radial direction of 5 to 50 MPa. Neither Berna nor any of the other cited references teach a circumferential stiffening layer having a Young's modulus greater than

100 MPa in the direction parallel to the axis of a cylinder of a printing machine. Accordingly, the obviousness rejection of amended claim 13 cannot stand.

Claims 14-19 are also allowable not only because they depend from allowable claim 1. According to the Office Action, it would have been obvious to those having ordinary skill in the art to provide the printing sleeve of Bresson as modified by Berna and Busshoff with a compressible layer made of microspheres in order to achieve increased compressibility of the compressible layer. However, Castelli teaches a complex structure in which the radially internal fabric layer 40 is part of a carcass 20 that is adhered to a printing apparatus by adhesive layer 30, which is contrary to and very different from the presently claimed invention. Because Castelli is so contrary to the presently claimed invention, one of ordinary skill in the art would not be led to modify Bresson, Busshoff, and Berna in view of Castelli to arrive at the presently claimed invention. Therefore, claims 14-19 are also patentable.

The Office Action rejected claim 21 over Bresson in view of Kia on the grounds that it would have been obvious to one of ordinary skill in the art to provide the printing sleeve of Bresson with the release agent and gel coat layer as taught by Kia. The obviousness rejection based on the combination of Bresson, Busshoff, and Berna cannot stand because Kia is not within the applicant's field of endeavor, nor is it pertinent to the problem with which the Applicants are concerned. Kia is directed to a method of producing a textured surface, such as recreational vehicle composite panels, through the use of a mold (col. 1, lines 7-16; col. 1, lines 24-25; col. 2, lines 46-49). Such a method of making textured surfaces on a composite article through the use of a mold is a very different field of endeavor from the printing sleeve field of the present invention. Furthermore, Kia teaches that the gel coat layer **14** defines the textured surface of the article **12** (Figure 1; col. 4, lines 38-42; col. 3, lines 52-56). One of ordinary skill in the art of printing sleeves, who is concerned with the *preventing* bulges and waves near the nip during printing, would not be led to use the gel taught by Kia that is specifically designed to create textured surfaces. Therefore, one of ordinary skill in the art of printing sleeves would not be led to modify the printing sleeve of Bresson in view of Kia.

In view of the following amendments and remarks, reconsideration is respectfully requested.

Respectfully submitted,

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